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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,981	10/20/2005	Kayo Kamei	4255-23	8249
23117 7590 08/08/2008 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
PRIMO, ALLISTER O				
ART UNIT		PAPER NUMBER		
2854				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/553,981

## Applicant(s)

KAMEI ET AL.

## Examiner

ALLISTER PRIMO

## Art Unit

2854

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04/07/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/20/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1 and 5 – 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masako (JP Pub 2000-313533 English translation) in view of Ina (JP 55156153).

With respect to claim 1, Masako discloses in drawing 2, an image forming apparatus, provided with a paper feed cassette, 1, and an image forming portion, that takes out a recording medium stored in this paper feed cassette sheet by sheet in response to an image forming request and performs image forming in the image forming portion, the image forming apparatus comprising: a push-out means, 4, that can push out the paper feed cassette from an installed state toward an uninstalled state relative to the main body of the apparatus;

But does not teach a sheet quantity confirming means that can confirm the number of sheets of the recording medium stored in the paper feed cassette; or a control means that causes the sheet quantity confirming means to confirm the number of sheets of the recording medium stored in the paper feed cassette when an image forming request has been made, and if the number of sheets of the recording medium stored in the paper feed cassette is lower than the number of sheets necessary to complete an image forming operation in accordance with the image forming request, the control means causes the paper feed cassette to be pushed out from an installed state toward an uninstalled state by the push-out means without executing the image forming operation, and causes the user to be warned that the number of sheets of the recording medium is insufficient to complete the image forming operation in accordance with the image forming request.

Ina teaches, in the constitution section of the abstract, a sheet quantity confirming means that can confirm the number of sheets of the recording medium stored in the paper feed cassette (In lines 6 – 11, abstract, Ina teaches, "a position of a paper carrying table PP elevated in accordance with an amount of a printing paper P is detected to inform a user the remained amount of the printing paper P by indicating a condition thereof in an operating portion, OP. A proper set of position detecting sensors are provided at predetermined plural positions within an elevating range of the paper carrying table PP, for example." Since the apparatus is capable of detecting the remaining amounts of paper in cassette the examiner considers the 'sheet quantity confirming means' to be an inherent part of the apparatus); or a control means, OP

(operating portion), that causes the sheet quantity confirming means to confirm the number of sheets of the recording medium stored in the paper feed cassette when an image forming request has been made, and if the number of sheets of the recording medium stored in the paper feed cassette is lower than the number of sheets necessary to complete an image forming operation in accordance with the image forming request, the control means causes the paper feed cassette to be pushed out from an installed state toward an uninstalled state by the push-out means without executing the image forming operation, and causes the user to be warned that the number of sheets of the recording medium is insufficient to complete the image forming operation in accordance with the image forming request. Ina states in the "Purpose" section of the abstract that the purpose is to "prevent an interruption of a process due to insufficient amount of the paper." Thus a printing process must inherently not have begun if there is not enough paper.

Since the apparatus as disclose by the references above, is capable of displaying the remaining amounts of paper in cassette (Ina, abstract, lines 6 - 11) and pushing the paper feed cassette from an installed state to and uninstalled state (Masako solution section lines 3-6), it is inherent by the structure and references as applied above that the control means of the apparatus is capable of carrying out the functions recited.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the image forming apparatus disclosed by Masako with the teachings of Ina, as discussed above, because the added components will alert the user

and apparatus when not enough paper is present for a current job, and allow the apparatus to prevent unnecessary partial printing of a job due to lack of paper.

With respect to claim 5, the references as applied above disclose the claimed invention Masako further discloses (in drawing 2,) an engaging mechanism that can switch between an engaged state and a released state of the paper feed cassette relative to the main body of the apparatus (with, "push-out means 4" as the engaging mechanism. The solution section lines 3-6 also teaches, "engaging mechanism that can switch between an engaged state and a released state of the paper feed cassette relative to the main body of the apparatus" ); and a biasing portion that confers a biasing force on the paper feed cassette in the push-out direction (with, "Spring 5" as the biasing portion); and wherein when the number of sheets of the recording medium stored in the paper feed cassette is lower than the requested number of image forming sheets, the engaging mechanism puts the paper feed cassette in a released state relative to the main body of the apparatus( In solution section lines 7-13).

With respect to claim 6 the Masako as applied above discloses the claimed invention except wherein the control means, immediately after an image forming request has been received, causes the sheet quantity confirming means to confirm the number of sheets of the recording medium stored in the paper feed cassette, and if the number of sheets of the recording medium stored in the paper feed cassette is lower than the number of sheets requested by the image forming request, the control means

causes the paper feed cassette to be pushed out from an installed state toward an uninstalled state by the push-out means without executing the image forming operation, and causes the user to be warned by the warning means that the number of sheets of the recording medium is insufficient.

Ina teaches , the control means, OP, immediately after an image forming request has been received, causes the sheet quantity confirming means, another part of OP, to confirm the number of sheets of the recording medium stored in the paper feed cassette, and if the number of sheets of the recording medium stored in the paper feed cassette is lower than the number of sheets requested by the image forming request, the control means causes the paper feed cassette to be pushed out from an installed state toward an uninstalled state by the push-out means without executing the image forming operation, and causes the user to be warned by the warning means that the number of sheets of the recording medium is insufficient .

Since the apparatus as disclose by the references above, is capable of displaying the remaining amounts of paper in cassette (Ina, abstract, lines 6 - 11) and pushing the paper feed cassette from an installed state to and uninstalled state (Masako solution section lines 3-6), it is inherent by the structure and references as applied above that the control means of the apparatus is capable of carrying out the functions recited.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the image forming apparatus disclosed by Masako with the teachings of Ina, as discussed above, because the added components will alert the user

and apparatus when not enough paper is present for current job, and allow the apparatus to prevent unnecessary partial printing of a job due to lack of paper.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 above, and further in view of Sawada (US 6876819.)

With respect to claim 2, the references as applied above disclose the claimed invention except wherein said image forming apparatus is configured to communicate with a terminal machine; Wherein said image forming request has been received from said terminal machine ; and wherein said warning is provided at the terminal machine.

Sawada teaches an image forming apparatus that is configured to communicate with a terminal machine, 1; wherein said image forming request has been received from said terminal machine, 1; and wherein said warning is provided at the terminal machine1 described in column 2 lines 37 – 59 and more specifically Column 6 lines 1 - 20.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the image forming apparatus disclosed by the references as applied of with the teaching of Sawada for the purpose of remotely monitoring an operating condition of the image forming device.



5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 above, and further in view of Fukuda (JP 57160844).

With respect to claim 3 the references as applied above to claim 1 disclose the claimed invention except the device further comprising a paper storage board that supports a recording medium and moves to a lower position as the number of stored sheets of the recording medium increases; wherein the sheet quantity confirming means confirms the number of sheets of the recording medium stored in the paper feed cassette by detecting a height position of the paper storage board with a reflective optical sensor.

Fukuda discloses in figure 2 an image forming device comprising a paper storage board, 2, that supports a recording medium and moves to a lower position as the number of stored sheets of the recording medium increases; wherein the sheet quantity confirming means, 9 and 10, confirms the number of sheets of the recording medium stored in the paper feed cassette by detecting a height position of the paper storage board, 2, with a reflective optical sensor, 10.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the image forming apparatus disclosed by the references as applied of with the teaching of Fukuda for the purpose of digitally indicating the remaining amount of sheets.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 above, and further in view of Nobusuke(JP Pub. 2000-335784).

With respect to claim 4, the references as applied above in claim 1, disclose the claimed invention except wherein the paper feed cassette comprises: a matching portion made of metal that extends in the vertical direction along the edge of the stored recording medium and matches the recording medium; and a paper storage board made of metal that is movable along this matching portion in the vertical direction while contacting this matching portion and that moves to a lower position as the number of stored sheets of the recording medium increases; wherein the sheet quantity confirming means lets a current flow from the paper storage board to the matching portion, and confirms the number of sheets of the recording medium stored in the paper feed cassette based on the electrical resistance from the paper storage

Nobusuke teaches (in solution section of the abstract,) a matching portion made of metal that extends in the vertical direction along the edge of the stored recording medium and matches the recording medium (with, "residual detection part 9" as the matching portion); and a paper storage board made of metal that is movable along this matching portion in the vertical direction while contacting this matching portion and that moves to a lower position as the number of stored sheets of the recording medium increases( with, "bottom plate 2 "as the paper storage board); wherein the sheet quantity confirming means lets a current flow from the paper storage board to the

matching portion, and confirms the number of sheets of the recording medium stored in the paper feed cassette based on the electrical resistance from the paper storage board to the matching portion, which changes according to the height position of the paper storage board.( In solution section lines 4-9.)

It would be obvious to one having ordinary skill in the art at the time of the invention to combine the image forming apparatus disclose by the references as applied above with the teaching of Nobusuke for the purpose of making a emptied state visually recognizable when no paper is present in the paper feed cassette.

7. Claims 7, 8, 10, 11 and 14 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 above, and further in view of Aoki (US 6726197).

With respect to claims 7 and 17, Masako discloses in drawing 2, an image forming apparatus in combination with a terminal machine the image forming apparatus comprising: a paper feed cassette, 1, configured to contain paper sheets;

But doesn't teach, a paper sheet quantifier configured to determine the number of paper sheets contained in the paper feed cassette; an image forming portion configured to form an image on one or more of said paper sheets in response to an image forming request; a control portion configured to cause, prior to execution of an image forming job in response to said image forming request, the provision of a warning that the number of paper sheets contained in the paper feed cassette is insufficient to

complete said image forming job in response to said image forming request; wherein said image forming apparatus is further configured to withhold execution of said image forming job if the number of paper sheets contained in the paper feed cassette is insufficient to complete said image forming job in response to said image forming request.

Aoki teaches in figure 2, an image forming portion configured to form an image on one or more of said paper sheets in response to an image forming request;

Ina teaches, in the constitution section of the abstract, a paper sheet quantifier configured to determine the number of paper sheets contained in the paper feed cassette (In lines 6 – 11, abstract, Ina teaches, "a position of a paper carrying table PP elevated in accordance with an amount of a printing paper P is detected to inform a user the remained amount of the printing paper P by indicating a condition thereof in an operating portion, OP. A proper set of position detecting sensors are provided at predetermined plural positions within an elevating range of the paper carrying table PP, for example." Since the apparatus is capable of detecting the remaining amounts of paper in cassette the examiner considers the 'paper sheet quantifier' to be an inherent part of the apparatus); and a control portion, OP, configured to cause, prior to execution of an image forming job in response to said image forming request, the provision of a warning that the number of paper sheets contained in the paper feed cassette is insufficient to complete said image forming job in response to said image forming request; wherein said image forming apparatus is further configured to withhold execution of said image forming job if the number of paper sheets contained in the

paper feed cassette is insufficient to complete said image forming job in response to said image forming request. Ina states in "Purpose" section of the abstract that the purpose is to "prevent an interruption of a process due to insufficient amount of the paper." Thus a printing process must inherently not have begun if there is not enough paper.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the image forming apparatus disclosed by Masako and Aoki with the teachings of Ina, as discussed above, because the added components will alert the user and apparatus when not enough paper is present for current job, and allow the apparatus to prevent unnecessary partial printing of a job due to lack of paper.

With respect to claim 8, the references as applied above in claim 7 disclose the claimed invention Masako further discloses in drawing 2, the device comprising: a paper feed cassette ejector, 4, configured to push out the paper feed cassette from an installed state toward an uninstalled state relative to a main body of the apparatus; wherein said control portion, OP (Ina) is further configured to cause, prior to execution of an image forming job in response to said image forming request, said paper feed cassette ejector to push out the paper feed cassette from an installed state toward an uninstalled state relative to a main body of the apparatus.

With respect to claims 10 and 11 the method is necessitated by the structure disclosed in claims 7 and 8 above. The structure disclosed by the references as applied above to claim 7 is capable of carrying out the recited functions.

With respect to claim 14 – 16 the references as applied above to claim 7 discloses the claimed invention Aoki further discloses wherein said warning comprise a visual and an auditory warning, described in column 6 lines 59 – 65.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 7 above, and further in view of Sawada.

With respect to claim 9 the references as applied above in claim 7, teach the claim invention except for a terminal machine.

Sawada teaches an image forming apparatus that is configured to communicate with a terminal machine, 1; wherein said image forming request has been received from said terminal machine, 1; and wherein said warning is provided at the terminal machine1 described in column 2 lines 37 – 59 and more specifically Column 6 lines 1 - 20.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the image forming apparatus disclosed by the references as applied of with the teaching of Sawada for the purpose of remotely monitoring an operating condition of the image forming device.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the reference as applied to claim 1 above, and further in view of Fukuda.

With respect to claim 12 the references as applied above in claim 7 disclose the claimed invention except wherein: said paper feed cassette comprises a movable paper storage board supporting said one or more paper sheets, wherein a position of the paper storage board is dependant upon the number of paper sheets contained in said paper feed cassette; wherein said paper sheet quantifier comprises a reflective optical sensor configured to detect a height of said paper storage board; wherein said reflective optical sensor comprises a light emitter and a light receiver; wherein said light emitter is configured to emit light to be reflected from said paper storage board to said light receiver.

Fukuda discloses in figure 2, a paper feed cassette comprises a movable paper storage board, 2, supporting said one or more paper sheets, wherein a position of the paper storage board is dependant upon the number of paper sheets contained in said paper feed cassette; wherein said paper sheet quantifier comprises a reflective optical sensor configured to detect a height of said paper storage board, described in constitution section; wherein said reflective optical sensor comprises a light emitter, 9, and a light receiver, ; wherein said light emitter is configured to emit light to be reflected from said paper storage board to said light receiver, describe in the constitution section.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the image forming apparatus disclosed by the references as applied of with the teaching of Fukuda for the purpose of digitally indicating the remaining amount of sheets.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 above, and further in view of Nobusuke.

With respect to claim 13 the references as applied above in claim 7 disclose the claimed invention except wherein the paper feed cassette comprises: a paper sheet quantifier comprising: a metal portion of said paper feed cassette that extends in the vertical direction along an edge of said one or more paper sheets contained in said paper feed cassette; a movable paper storage board supporting said one or more paper sheets, wherein a position of the paper storage board is dependant upon the number of paper sheets contained in said paper feed cassette; wherein said paper storage board comprises metal and is movable along said portion in the vertical direction while contacting said portion; wherein electrical resistance between the paper storage board and said metal portion is dependant upon a height position of the paper storage board; and wherein said paper sheet quantifier is configured to permit a current flow from the paper storage board to said metal portion and to confirm the number of paper sheets contained in the paper feed cassette based on electrical resistance from the paper storage board to said metal portion.



Nobusuke teaches (in solution section of the abstract), a paper sheet quantifier comprising: a metal portion, 9, of said paper feed cassette that extends in the vertical direction along an edge of said one or more paper sheets contained in said paper feed cassette; a movable paper storage, 2, board supporting said one or more paper sheets, wherein a position of the paper storage board is dependant upon the number of paper sheets contained in said paper feed cassette; wherein said paper storage board comprises metal and is movable along said portion in the vertical direction while contacting said portion; wherein electrical resistance between the paper storage board and said metal portion is dependant upon a height position of the paper storage board; and wherein said paper sheet quantifier is configured to permit a current flow from the paper storage board to said metal portion and to confirm the number of paper sheets contained in the paper feed cassette based on electrical resistance from the paper storage board to said metal portion described in solution section lines 4-9.

It would be obvious to one having ordinary skill in the art at the time of the invention to combine the image forming apparatus disclose by the references as applied above with the teaching of Nobusuke for the purpose of making a emptied state visually recognizable when no paper is present in the paper feed cassette.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLISTER PRIMO whose telephone number is (571)270-5069. The examiner can normally be reached on M - F 9 - 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy NGUYEN can be reached on (571) 272 - 2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AP  
August 4, 2008

/Daniel J. Colilla/  
Primary Examiner  
Art Unit 2854